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SPECIALIZATION — OR NOT?

Two engineers in Toronto argue against the wisdom of creating a specialist designation for structural engineers in Ontario.

Professional Enginees of Ontario (PEO) is considering making regulatory changes to create a Structural Engineering Specialist designation to ensure "… that incidents like the Algo Centre Mall collapse are not repeated."[1] PEO defines a Specialist certification as a designation granted to registrants demonstrating required competencies to practice in defined areas of practice.[2]

But are such specialist certifications required or desirable?

In our province, the idea of a specialist program is hardly new. In 1972, after much discussion, review and a member referendum, PEO instituted a Designated Specialist program. It ultimately covered 74 classes of specialty in nine fields of engineering. Citing a lack of interest, PEO terminated the program 14 years later. The idea of re-instituting a specialist program is likewise not new. In 2001, PEO's then-president Gordon Sterling supported such a program, arguing "the public is asking no more than that we demonstrate qualifications we claim to possess already."[3]

Clients already know which engineers have experience

Although reference is made often to how the public would benefit from specialist designations being introduced, it is a rare instance when a layperson requires or is exposed to a P.Eng. Individual homes are generally covered by Part 9 in the National Building Code/OBC and typically do not require the intervention of a professional engineer. For most industrial, commercial, institutional and larger residential buildings covered by Parts 3 and 4 of the code, architects usually engage engineering firms that they know are experienced and specialized, whether it be in soils, structural, electrical or mechanical engineering. Similarly, land developers hire firms that specialize in planning, surveying and site servicing. For large municipal projects, government agencies engage engineering firms who have knowledge and experience in the type of project in question.

Further, within broader categories of engineering, generally there is additional sub-specialization. For example, a

structural engineer experienced in bridges will not be hired to carry out the design and analysis of tall buildings. Such experience-based sub-specializations exist for most engineering fields.

In 2003 John Springfield — a structural engineer for many major buildings and skyscrapers in Canada and the U.S. who had also served on PEO's panel of examiners while it still had its Specialist Designation program — wrote: the "Specialist designation might have an impact on a panel of laypeople that is assigning a project to a very small practice, but in the greater engineering orbit, it would count for little. Recent past accomplishments and a proposed method of tackling a project are likely to be the significant criteria for a client selecting an engineer."[4] Our own experience has been that if potential clients do not know you or know of your services and expertise, they will not hire you.

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Doesn't the "consulting engineer" designation suffice?

Currently in Ontario, PEO licenses over 77,000 individuals in 30 engineering disciplines. PEO's practice guideline says: "professional engineers generally have an unrestricted right to practise professional engineering," which means that "professional engineers can practise in any area of engineering, as long as they are competent to do so." As such "professional engineers are expected to self-police their activities and accept assignments only for work for which they have the requisite knowledge and experience or can acquire the necessary knowledge in a reasonable amount of time."[5]

Within the total membership, roughly 1,200 are designated by PEO as "Consulting Engineers." The requirements for the Specialist designation program that PEO had in place from 1972 to 1986 are almost identical to the current requirements for its Consulting Engineer designation program. Both required the member to be engaged in the practice of professional engineering, and both required five or more years of experience beyond membership. Are these licence holders not already specialists in their respective fields of practice? In the structural engineering discipline, for example, there are 1,446 licence-holders, of whom 59 are PEO-designated Consulting Engineers.[6]

No specialist designations anywhere except B.C.

Except for British Columbia, none of the provincial engineers associations have specialist designations. Only the Association of Professional Engineers and Geoscientists of B.C. (APEGBC) offers a specialist designation, and it is only for structural engineering.

Is such a program needed in Ontario? Since 2000, there have been 38 buildings (four offices, seven residential/hotels and 27 condominiums) over 100 metres tall built in Toronto alone,[7] and currently almost 30 towers over 100 metres tall are under construction. In spite of the large numbers of tall and unique structures being built, to our knowledge there have been no systemic problems with the practice of structural engineering in Ontario that would warrant the APEGBC-style structural engineering specialist.

What then is the problem?

In 1999, we (the authors) carried out a demographic analysis of the PEO membership which revealed that only about 25% to 30% of the members actually performed or supervised engineering work.[8]

More recently, a spring 2014 study by the Ontario Society of Professional Engineers (OSPE) found that less than 30% of employed people who held a Bachelor's or higher degree in engineering were actually working as engineers or engineering managers.[9] OSPE called the remaining 70% not working in engineering "Ontario's Lost Engineers." However, our own analysis showed this group works at all levels in many other sectors, including education, finance, marketing and sales. As such these individuals are of great value to society. However, they badly skew the statistics that are gathered from members and associated with professional engineers as a group. Since these people do not do professional engineering work, they do not need to vote in the professional engineering body's elections, participate in professional-related matters, or engage in professional development.[10] This 70% group not working in engineering makes the profession appear complacent and out of touch.

Further to our demographic analysis, our own experience based on our interaction with classmates and associates is that the 30% of PEO members who work in engineering do vote in PEO elections and do participate in PEO related matters. Further, this group is forced to maintain competency, if nothing else, by virtue of market forces — stay current and relevant, or be left behind and lose clients.

We would argue that before going the route of re-establishing a Designated Specialist program, provincial professional engineering licensing associations should differentiate between those members who work in engineering, from those who do not. To our minds, the public and the profession are not well served by having the majority of the currently licensed P.Eng.'s not working or practising as professional engineers without identifying and distinguishing them as such.

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Client pressures

Clients are increasingly applying pressure on "consulting engineers to assume legal responsibility for a growing number of risky areas in construction projects."[11] One of our major clients presented a totally one-sided "take it as is or leave it" services agreement to its approved consultants. We walked away from the client. Others did not.

In addition to contractual matters, in more situations than we as a profession are willing to admit, clients exert enormous pressure on professional engineers to see things the clients' way. In a couple of interviews with potential clients interested in engaging us as experts, we informed them that the tenor and tone of our reports and opinions would be dictated by the facts as we saw them, irrespective of who would be engaging us. We were told that our services would not be needed.

We have been involved in projects where we determined parts of existing structures were in need of remedial work. We have lost count of the number of times that clients have asked "Will it fall down tomorrow?" What is a professional engineer to do when faced with recalcitrant clients who would choose to ignore the professional's recommendations in a manner the member believes to be contrary to the public interest? Nothing that we know of — short of turning to their insurers for assistance, or threatening to whistle blow. Unfortunately history has shown that whistleblowers do so at their own peril.[12] Such situations are untenable.

Real solutions for consideration

To our minds, the real problems that professional engineers need to deal with are two-fold: professional licensing bodies where in some cases large numbers of members do not work in engineering; and an economic landscape populated by more than a few self serving, uncooperative or even hostile clients.

Instead of trying to reboot a specialist designation program that was of questionable value and was therefore abandoned almost three decades ago, we believe that professional engineering associations should grant licences to only those who work in engineering. Failing that, they should differentiate between those members who work in engineering from those who do not by establishing different categories of membership.

And in instances where clients attempt to modify or ignore a P.Eng.'s recommendations in a manner that is not in the best interest of the public, all associations should develop a process to assist the member and/or her/his firm, without the member or firm being subject to muzzling or fears of legal reprisals. CCE

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[1] News, *Engineering Dimensions*, Sep/Oct 2013

[2] Public Identification of Engineering Expertise element of the Canadian Framework for Licensure, PEO, July 2013

[3] President's Message, *Engineering Dimension*, Jul/Aug 2001

[4] Letters, Counts for Little in Greater Orbit, *Canadian Consulting Engineer*, Jul 2003

[5] Professional Engineering Practice Guideline, Professional Engineers Ontario, January 2012, http://peo.on.ca/index.php/ci_id/22127/la_id/1.htm

[6] Directories of Practitioners, peo.on.ca/index.php?ci_id=1798&la_id=1

[7] "Toronto is a Runner Up When it Comes to Super Tall Condos", www.torontobubble.com, 3 Feb 2014

[8] Appendix 4, Report of the Task Force on Admissions, Complaints, Discipline and Enforcement, presented to Council in Sep 1999

[9] "Ontario's Lost Engineers", *The Voice of Ontario Engineers*, Fall 2014, Vol 5, No 2

[10] Letters, Meaningless Membership, *Engineering Dimensions*, Nov/Dec 2007

[11] Business, C*anadian Consulting Engineer*, Dec 2013

[12] "Whistleblowing, The Challenger disaster," NC State University, http://people.engr.ncsu.edu/efg/379/sum06/lectures/wk15/lecture.html